

Neglected/ Underutilized Vegetables of Bundelkhand Region of India

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Introduction

Bundelkhand is a historic, geographical and cultural region and a proposed state and a mountain range in Central and North India. The hilly regions are now divided between the state of Uttar Pradesh and Madhya Pradesh, with the larger portion lying in the latter states. While agriculture is the prominent occupation in Bundelkhand, land available and used for cultivation in the region is considerably lower than in other agricultural zones of the country. Although the rainfall pattern and the extent of irrigation in Bundelkhand theoretically favors kharif (monsoon) cultivation, most of the land is cultivated in the rabi (post-monsoon) season. UP Bundelkhand is predominantly a pulses-growing region in the country. Wheat, rice, barley, jowar, bajra, oil seed and Betel vine are prominent crops of Bundelkhand. In the view of irrigation water rivers are the main source of irrigation of Bundelkhand. Ken and Betwa are the main source of diara cultivation of various kinds of vegetables like water melon, musk melon, pumpkin, and bitter melon etc. Both the UP and MP governments have hopes of promoting jatropha cultivation in the Bundelkhand district in a big way, for production of bio-diesel.

Neglected/ Underutilized Vegetables:

Neglected or underutilized vegetable crops are those which are neither grown commercially on a large scale nor traded widely. These vegetables have immense potential in strengthening the food security, nutritional security, income generation and broadening the food basket of the Bundelkhand people. India is blessed with a unique gift of nature, contributing significantly to global biodiversity. It is the homeland of 167 cultivated species and 320 wild relatives of cultivated crop plants. Many underutilized vegetables are nutritionally and medicinally rich and are gaining importance in human diet. Growing market opportunities for these vegetables may generate additional income to those poor farmers in less favored environments where these crops have comparative advantages over staples or

major crops. Besides these inclusion of neglected vegetable will broaden the food baskets and can address the problem of micronutrient malnutrition which is prevailing in resource of Bundeli peoples and becoming day by day.

Why Neglected Vegetable crops is important for Bundeli peoples.

- ✚ **Nutritional security:** Underutilized vegetables are rich source of vitamins, minerals, fiber and diversity of diet. It is a rich source of folic acid, which is commonly referred to as folate. Folic acid is involved in the multiplication, maturation of cells and its deficiency results in certain types of anemia especially in infants and in pregnant women. Various types of minerals present in underutilized crop like as calcium, magnesium, phosphorus, iron iodine, zinc and molybdenum. Furthermore, they have been a traditional part of cropping system, especially in home gardens.
- ✚ **Medicinal properties:** Several neglected vegetable possess several desired medicinal properties. Water spinach (*Ipomoea aquatica*) herbaceous aquatic or semi aquatic trailing type whose tender twigs with leaves are used vegetable or added to sauce and soups. Treatment of diabetes and antidote of scorpion venom. As emetic, diuretic, purgative, to treating debility, liver complaints.

Adaptive ability to adverse soil and climatic conditions:

Neglected vegetables possess unprecedented ability to stand against several stress conditions like vulnerable soil, moisture stress and unfavorable temperature. Several underutilized vegetables like Chinese water chestnut an aquatic vegetable that grows in marshes, under water and in the mud.

Some Neglected Vegetables are present in Bundelkhand region:

- ✚ **Water spinach /Karemu (*Ipomoea aquatica*) Forks:** It is an aquatic plant possessing long and hollow stems containing large numbers of air passages trailing type and often with rooting present at the nodes. In Bundelkhand are also referred as Karemu. water spinach is a highly nutritious and low-cost leafy vegetable. Whose tender twigs with leaves are used as vegetable called as Bhurra. It is mainly found in farmer field during rainy season and propagated by seed and herbaceous cutting. Treated as emetic, diuretic, purgative, to treating debility, liver complaints. This leafy vegetable grows well under sub-tropical condition of Bundelkhand.



- ✚ **Chakwad (*Cassia tora*):**In Bundelkhand region chakwad is also called as chakauda. It is most preferable vegetable of Bundelkhand during ancient time. In Bundelkhand found great diversity of this neglected vegetable crop. As soon as the first shower of the rainy season falls. Its plants grow themselves and the place which becomes empty after drying up during the summer, becomes green by filling with grass and pawar plants. Its leaves are pinnately shaped and have three pairs. *Cassia tora* plant has great medicinal properties. All parts of plant are used to treat various diseases but in Bundeli peoples mainly tender leaves are used as vegetable called as Bhurra.
- ✚ **Chinese water chestnut (*Eleocharis dulcis*):**Chinese water chestnut belongs to the family of grass-like wetland plants, Cyperaceae. In local language of Bundelkhand are called as Kusyal. In India, it is sold in Kolkata under the name of Singapuri Keysur. The water chestnut is not a nut but rather an aquatic vegetable that grows in marshes, under water and in the mud. The small, rounded corms have a crisp, white flesh and may be eaten raw and slightly boiled. Raw water chestnuts are slightly sweet and crunchy. The boiled corms are sold in train in the near Jhansi region of Bundelkhand. It is rich source of carbohydrates and starch.



- ✚ **Indian lotus (*Nelumbo nucifera*) Gaertn:** It is a potential aquatic crop grown and consumed throughout Asia. It is found mainly ponds of Bundelkhand. All parts of *N.*

nucifera have been used for various medicinal purposes in various systems of medicine including folk medicines, Ayurveda, Chinese traditional medicine and oriental medicine. In Bundelkhand roots are largely used as source of vegetable and leaves are majorly use as source of food plates. Lotus roots are a source of fiber to regulate the digestive tract and energy as they are high in carbohydrates.



- ✚ **Sorrel (*Rumex acetosa* L.):** It is commonly known as garden sorrel, grown for salad or pot herbs. Rumex is a large genus of annual, biennial or perennial herbs. In Bundelkhand region it is found large scales in the semi swamp land of river and ponds. The leaves of sorrel have a sharp, lemon flavors and are used in salad or cooked as vegetable. The plant also contains oxalic acid and leaves are refrigerant and diuretic and us as a blood purifier and in homeopathy for the treatment of skin diseases.



- ✚ **Sword bean (*Canavalia gladiata* Jacq.):** Sword bean is cultivated for its tender pods which are used as vegetables. Besides tender pod, fully grown immature seeds are consumed as a cooked vegetable, like another bean. In Bundelkhand young leaves are used as cattle feed and green manure. It found various antinutritional factors like concaavalin A and B.



- + **Queensland arrowroot (*Canna edulis* L.):** It is an edible perennial plant known for its rich starchy rhizome in the North eastern Himalayan regions of India. In Bundelkhand is commonly called as Keli and it is not grown commercially but its plants grow themselves in the near swamp land. Sometimes used as fodder and ornamental plants. The young rhizomes are eaten as a vegetable. Canna starch is obtained from the tubers by a process of rasping, washing, and straining. The final product is a shiny cream coloured powder.



- + **Tomatillo/Husk tomato (*Physalis ixocarpa* Brot./*Physalis philadelphica*):**

Tomatillo has tomato like leaves and grow to 60 cm high, produces a fruit about the size of walnut. In Bundeli languages it is called as Pedhakua. Tomatillo plants are tolerant to many different soil and climatic conditions. Thus, it is not grown commercial but it grown themselves. Tomatillo is less sweet than the ground cherry and the fruit is seedy, but solid and does not contain the juicy cavities found in tomatoes. Tomatillo is a rich in vitamin C content.



- ✚ **Indian spinach/ Poi (*Basella spp.*):**Basella is considered an important leafy vegetable, it is grown in almost all parts of the country. Its cultivation is quite popular in southern and North Eastern parts of the country. It is a very productive leafy vegetable, suitable for kitchen gardens. Indian spinach is commonly grown for makes an excellent vegetable after cooking. In Bundelkhand mainly consumed ripe purplish, small fruits. The red fruit juice can be used as ink, cosmetics and for coloring foods. Plant of Indian spinach are also used as ornamental. Young leaves are used as laxative. Rich in oxalic acid, vitamins and minerals.



- ✚ **Spinach/ Kartoli/ Kantola(*Momordica dioica*):**Spine gourd is consumed by tribal groups living around the natural forest areas, especially at higher altitudes, where the native folks consume it as a daily vegetable. In Bundelkhand region found a great diversity of spine gourd. In Bundeli local languages are called as Pandora. This vegetable did gain much popularity until it was discovered to have a high nutritional and medicinal value. Their immature tender green fruits are cooked as vegetable. The unripe fruits of both the crops act as appetizer and astringent. It also contained small quantities of essential vitamins like ascorbic acid, carotene, thiamin, riboflavin and niacin.



Conclusion:

India is the second largest producer of vegetables in globally. In Bundelkhand have a great diversity of many neglected vegetables. Underutilized vegetable has much nutritional



and medicinal value and provides nutritional security and source of income of Bundeli peoples. Bundelkhand is highly perturbed with variable climatic condition intensified by undulating topography, resources exploitation and weak socio-economic condition. Neglected vegetable have great ability to stand against adverse climatic conditions may prove boon to all concerns - growers, consumers and environmentalists, provided that they are tamed properly. The possible reasons for the low utilization of underutilized vegetables, in spite of their recognized importance are due to lack of availability of planting material, lack of awareness on nutritional and medicinal importance and lack of information on production technique of these crops. If all the shortcomings are removed then neglected vegetables provides great opportunity for nutrition and income generation of Bundeli communities.

